Patent Claims:

1. Milling method for the production of structural components from materials that are difficult to machine by chip-cutting, while producing depressions with at least one sidewall, especially for the production of integral bladed rotors for gas turbines, whereby the depressions especially form flow channels and the sidewalls especially form blade surfaces, whereby a milling tool having a tool radius is rotationally driven about an axis of the milling tool in order to ensure a central rotation thereof, whereby a reference point of the milling tool preferably lying on the axis is moved on several curved paths, whereby the paths preferably comprise different curvatures, and whereby the milling tool is moved with a radial miller feed relative to the material on the paths, characterized in that the curvature in each path point of each path is determined in such a manner that an optimized circumferential contact of the milling tool is ensured for each path point.

2. Method according to claim 1, characterized in that the curvature in each path point of each path is determined in such a manner that for each path point a maximum permissible circumferential contact of the milling tool is not exceeded.

3. Method according to claim 1 or 2, characterized in that at the beginning or at the start of each path, the milling

tool is moved into the material to be milled in such a manner, so that a path vector of the milling tool extends in the tangential direction to a sidewall that is to be milled-out of the structural component that is to be produced, and that the milling tool is moved into the material in this direction so long until the maximum permissible circumferential contact of the milling tool is reached.

4. Method according to claim 3, characterized in that, after reaching the maximum permissible circumferential contact, the path vector of the milling tool and therewith the curvature in each path point is adjusted as a function of the tool radius of the milling tool, as a function of the sidewalls or depressions that are to be milled-out, and as a function of a raw part contour or a milling contour of the last completed path, in such a manner so that approximately in each subsequent path point of the path the maximum permissible circumferential contact of the milling tool is ensured.

5. Method according to claim 4, characterized in that the maximum permissible circumferential contact of the milling tool is ensured in each subsequent path point of the path up to and except for an exit region of the milling tool out of the material to be milled.

6. Method according to one or more of the claims 1 to 5, characterized in that a translational feed advance motion of the reference point of the milling tool is superimposed on the motion of the reference point of the milling tool along the optimized curved paths and the central rotation of the milling tool about its axis.

7. Method according to claim 6, characterized in that the translational feed advance motion of the reference point of the milling tool occurs on a straight and/or curved feed advance path.

8. Method according to one or more of the claims 1 to 7, characterized in that the motion of the milling tool along the optimized curved paths and the central rotation thereof is carried out with opposite rotation direction.

9. Method according to one or more of the claims 1 to 9, characterized in that a pivoting motion of the axis of the milling tool for the production of a wobbling motion with variable tilt of the axis is superimposed on the motion of the reference point of the milling tool along the optimized curved paths, the central rotation of the milling tool about its axis, and the translational feed advance motion of the reference point of the milling tool.

10. Method according to claim 9, characterized in that for this purpose, the axis of the milling tool is periodically pivoted about a point in the area of a miller tip.